

<b>Activity:</b>	<b>5.7 Build Data Model</b>
<b>Responsibility:</b>	Project Team Analysts
<b>Description:</b>	<p>A data model is a representation of a collection of data objects and the relationships among these objects. The data model is used to provide the following functions:</p> <ul style="list-style-type: none"><li>• Transform the business entities into data entities.</li><li>• Transform the business rules into data relationships.</li><li>• Resolve the many-to many relationships as intersecting data entities.</li><li>• Determine a unique identifier (keys) for each data entity.</li><li>• Add the attributes (facts) for each data entity.</li><li>• Document the integrity rules required in the model.</li><li>• Determine the data accesses (navigation) of the model.</li></ul>
<b>Work Product:</b>	<p>The data dictionary started in the Requirements Definition Stage is expanded in this stage to catalog every known data element used in the user's work and every system-generated data element. Data elements are documented in detail to include attributes, known constraints, input sources, output destinations, and known formats.</p> <p>The data dictionary can serve as a central repository of information for both programmers and end users. The dictionary can include business rules, processing statistics, and cross-referencing information for multiple vendor environments.</p> <p>To expand the data dictionary, define, analyze, and complete data definitions using the following steps.</p> <ul style="list-style-type: none"><li>• Identify data needs associated with various system features.</li><li>• Match (verify) data needs with the data dictionary.</li><li>• Match the data dictionary with specific data structures.</li></ul>

**Work Product,  
continued:**

- Create data record layouts.
- Ensure that all data can be maintained through add, change, or delete functions.

The data dictionary is further refined in the System Design Stage to complete the information on data elements, entities, files, physical characteristics, and data conversion requirements.

**Sample  
Attributes:**

The following is a sample of the type of attributes (information) that should be included for each element in a data dictionary.

Long data name (full name)  
Short data name (abbreviation)  
Alias  
Data definition  
Owner(s)  
Occurrence(s)/key  
Program mode  
Input source(s); e.g., screens, external interfaces, system generated  
Output destination(s); e.g., screens, reports, external interfaces  
Values/meanings  
Protection/security  
Default value  
Length/precision  
Character set (type)  
Format  
Range  
Surface edits  
Remarks

**Review Process:**

Schedule a structured walkthrough to verify that the data dictionary is correct and complete.